

AB 32 directs the ARB to evaluate the total potential “non-economic benefits of the plan for reducing greenhouse gases. . .” Staff has asked three questions of stakeholders about non-economic benefits, but, PG&E believes that a threshold question needs to be asked: *What is the definition of “non-economic benefits?”*

Although not explicitly, the staff white paper appears to limit the definition of non-economic benefits, or co-benefits, to levels of in-state toxic and criteria air pollutants. However, this implicit definition excludes important aspects of non-economic benefits. Non-economic impacts include *all* ramifications of policies external to the variables being quantified in the modeling, including effects on other environmental goods and effects on overall social welfare. Co-benefits are any two or more benefits that are derived together from a single measure;¹ in greenhouse gas policy, co-benefits are any benefits that are ancillary to the GHG reduction. Co-benefits include economic co-benefits (e.g. rural development, green jobs, local enterprise) and environmental co-benefits (e.g. human health, natural ecologic systems).

When considering the impacts of policies, the ARB should consider all non-economic benefits. For example, conservation tillage has important non-economic benefits not mentioned in the ARB white paper. Conservation tillage reduces soil erosion and nutrient run-off, which may improve water quality and wildlife habitat. For example, some experts have concluded that retiring agricultural land brings considerable co-benefits in water quality and eutrophication.² Thus, offset projects may have significant co-benefits and non-economic benefits as well.

Additionally, staff stated that evaluation of non-economic costs and benefits would be limited to California. While certain command and control regulations could decrease local air pollutants in California, greenhouse gas emissions and toxic emissions could increase elsewhere. California may decrease reliance on natural gas facilities, but if this is done at the cost of increasing coal generation facilities elsewhere, populations outside of the state will suffer. Even if only qualitatively, policymakers should consider such ramifications in assessing non-economic costs and benefits and co-benefits.

¹ The IES Handbook., <http://www.epa.gov/ies/handbook.htm>, pp. 8.

² Hongli Feng, Lyubov A. Kurkalova, Catherine L. Kling and Philip W. Gassman; *Transfers and environmental co-benefits of carbon sequestration in agricultural soils: retiring agricultural land in the Upper Mississippi River Basin*; Climatic Change; Volume 80, Numbers 1-2 / January, 2007

Do you have comments or recommendations relating to the evaluation plan described in the white paper?

PG&E agrees with the staff approach of combining qualitative and quantitative evaluation methods for non-economic benefits. As stated above, the ARB should evaluate all co-benefits, not just the proposed list in the white paper. When examining flexible compliance policies, the co-benefits of those policies must also be evaluated. Non-economic evaluation should not be restricted to the geographic boundaries of California.

When ramifications of different policies are discussed, they should be presented in the context of complete policy packages. For example, a total command and control policy for CO₂ from facilities may decrease local air pollution but could have collateral effects on local economies. Quantitative results should be qualified carefully as merely being indicative and not exact.

The white paper states that staff will rely on earlier work done for the Climate Action Team (CAT). As you have heard from other stakeholders, PG&E also hopes that inputs and analysis on the potential GHG reduction measures are presented to the public in a digestible format to ensure openness of the process and the ability to verify the results.

Are there specific additional analyses or analytic tools that ARB should consider using in approaching these evaluations?

As the staff has realized, the task ahead of them is quite complicated. Models evaluate point-sources better than non-point sources, but most of the toxic air pollutants in California come from transportation. The following table is taken from the CAT Update:

Criteria Pollutant Emission Factors

Emission Factors	ROGs	NO_x	PM₁₀
Electricity	(not estimated)	0.018 kg/MWh	0.018 kg/MWh
Gasoline: up stream emissions avoided by reduced fuel use	0.33 kg/1,000 gallons	0.022 kg/1,000 gallons	0.066 kg/1,000 gallons
Gasoline: combustion emissions avoided by reduced vehicle use	4.4 kg/1,000 gallons	9.3 kg/1,000 gallons	0.9 kg/1,000 gallons
Diesel Fuel: combustion emissions avoided by reduced fuel use	11.0 kg/1,000 gallons	140 kg/1,000 gallons	0.25 kg/1,000 gallons

If the evaluation tools focus on point sources, staff will not be addressing the main source for toxic emissions. For example, electrification of transportation will bring important co-benefits of decreased criteria pollutants. However, if

*Pacific Gas and Electric Company's
Comments to the California Air Resources Board
on AB 32 Non-Economic Benefits
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evaluation focuses on point sources, electricity production in California could be discouraged such that these important co-benefits do not occur.

At this time, we do not have any specific analytical tool suggestions for staff. However, we remain committed to helping the ARB. If you have any questions about this letter, please call Soumya Sastry at (415) 973 3295.